

# *Gigyf1* Cas9-KO Strategy

**Designer:**

**Ruirui Zhang**

**Reviewer:**

**Huimin Su**

**Design Date:**

**2019-11-5**

# Project Overview

---

**Project Name**

***Gigyf1***

---

**Project type**

**Cas9-KO**

---

**Strain background**

**C57BL/6J**

---

# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Gigyf1* gene. The schematic diagram is as follows:



- The *Gigyf1* gene has 2 transcripts. According to the structure of *Gigyf1* gene, exon1-exon9 of *Gigyf1-201* (ENSMUST00000031727.9) transcript is recommended as the knockout region. The region contains start codon ATG. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Gigyf1* gene. The brief process is as follows: sgRNA was transcribed in vitro. Cas9 and sgRNA were microinjected into the fertilized eggs of C57BL/6J mice. Fertilized eggs were transplanted to obtain positive F0 mice which were confirmed by PCR and sequencing. A stable F1 generation mouse model was obtained by mating positive F0 generation mice with C57BL/6J mice.

- The *Gigyf1* gene is located on the Chr5. If the knockout mice are crossed with other mice strains to obtain double gene positive homozygous mouse offspring, please avoid the two genes on the same chromosome.
- The KO region contains part of intron region of the *Epo* gene. Knockout the region may affect the function of *Epo* gene.
- This strategy is designed based on genetic information in existing databases. Due to the complexity of biological processes, all risk of the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.



# Gene information (NCBI)

## Gigyf1 GRB10 interacting GYF protein 1 [ *Mus musculus* (house mouse) ]

Gene ID: 57330, updated on 14-Aug-2019

### Summary

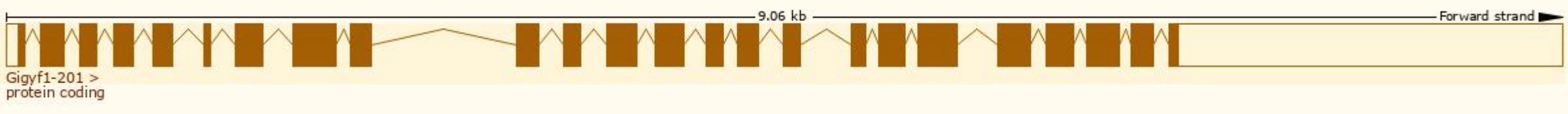
Official Symbol	Gigyf1 provided by MGI
Official Full Name	GRB10 interacting GYF protein 1 provided by MGI
Primary source	<a href="#">MGI:MGI:1888677</a>
See related	<a href="#">Ensembl:ENSMUSG00000029714</a>
Gene type	protein coding
RefSeq status	VALIDATED
Organism	<a href="#">Mus musculus</a>
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Perq1; mKIAA4110
Expression	Ubiquitous expression in thymus adult (RPKM 27.6), ovary adult (RPKM 21.3) and 28 other tissues <a href="#">See more</a>
Orthologs	<a href="#">human</a> <a href="#">all</a>

# Transcript information (Ensembl)

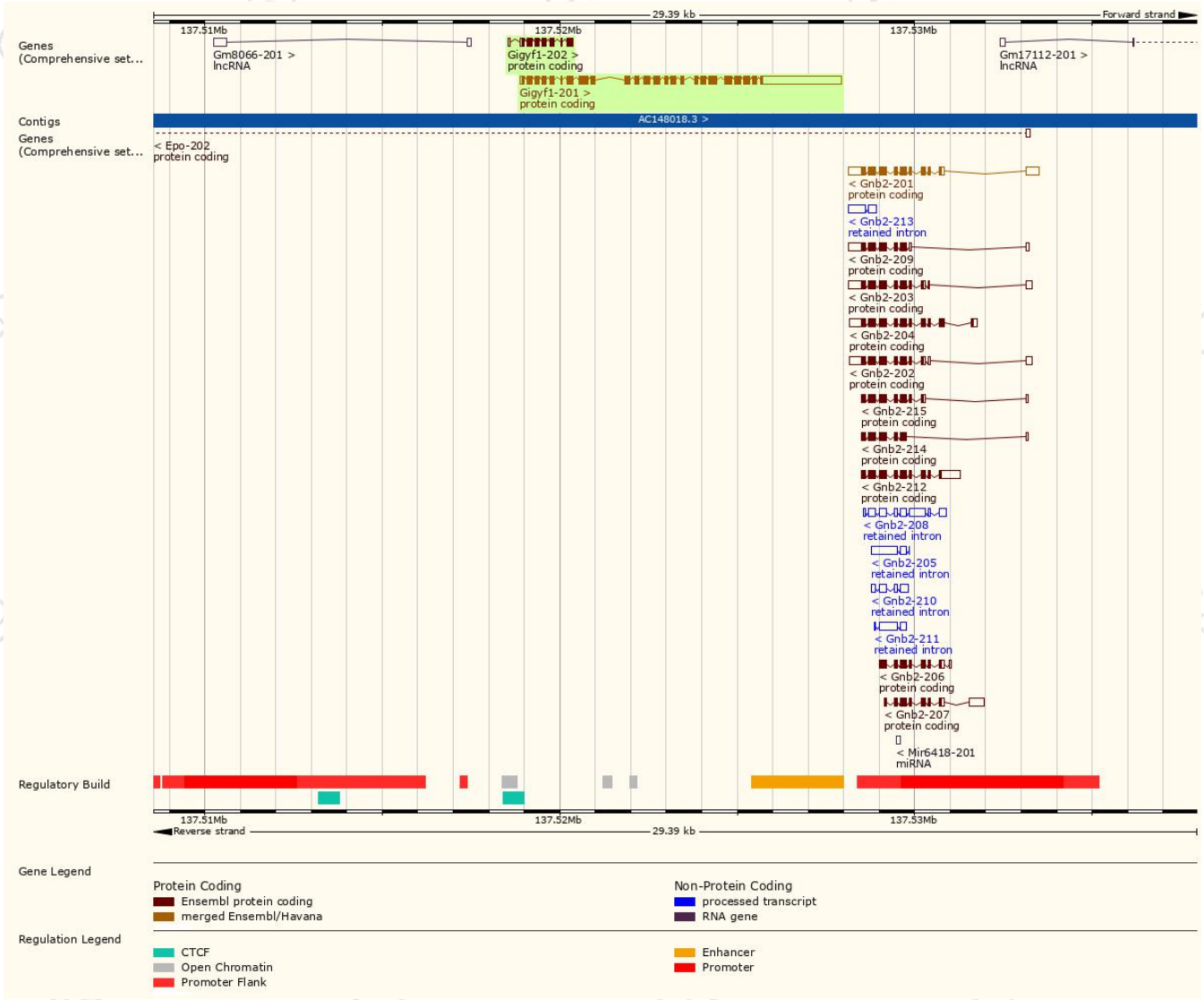
The gene has 2 transcripts,all transcripts are shown below:

Name ▲	Transcript ID ▲	bp ▲	Protein ▲	Biotype ▲	CCDS ▲	UniProt ▲	Flags ▲
Gigyf1-201	<a href="#">ENSMUST00000031727.9</a>	5440	<a href="#">1044aa</a>	Protein coding	<a href="#">CCDS51673</a>	<a href="#">Q99MR1</a>	TSL:1 GENCODE basic APPRIS P1
Gigyf1-202	<a href="#">ENSMUST00000197624.4</a>	827	<a href="#">229aa</a>	Protein coding	-	<a href="#">A0A0G2JGR7</a>	CDS 3' incomplete TSL:5

The strategy is based on the design of *Gigyf1-201* transcript, the transcription is shown below:

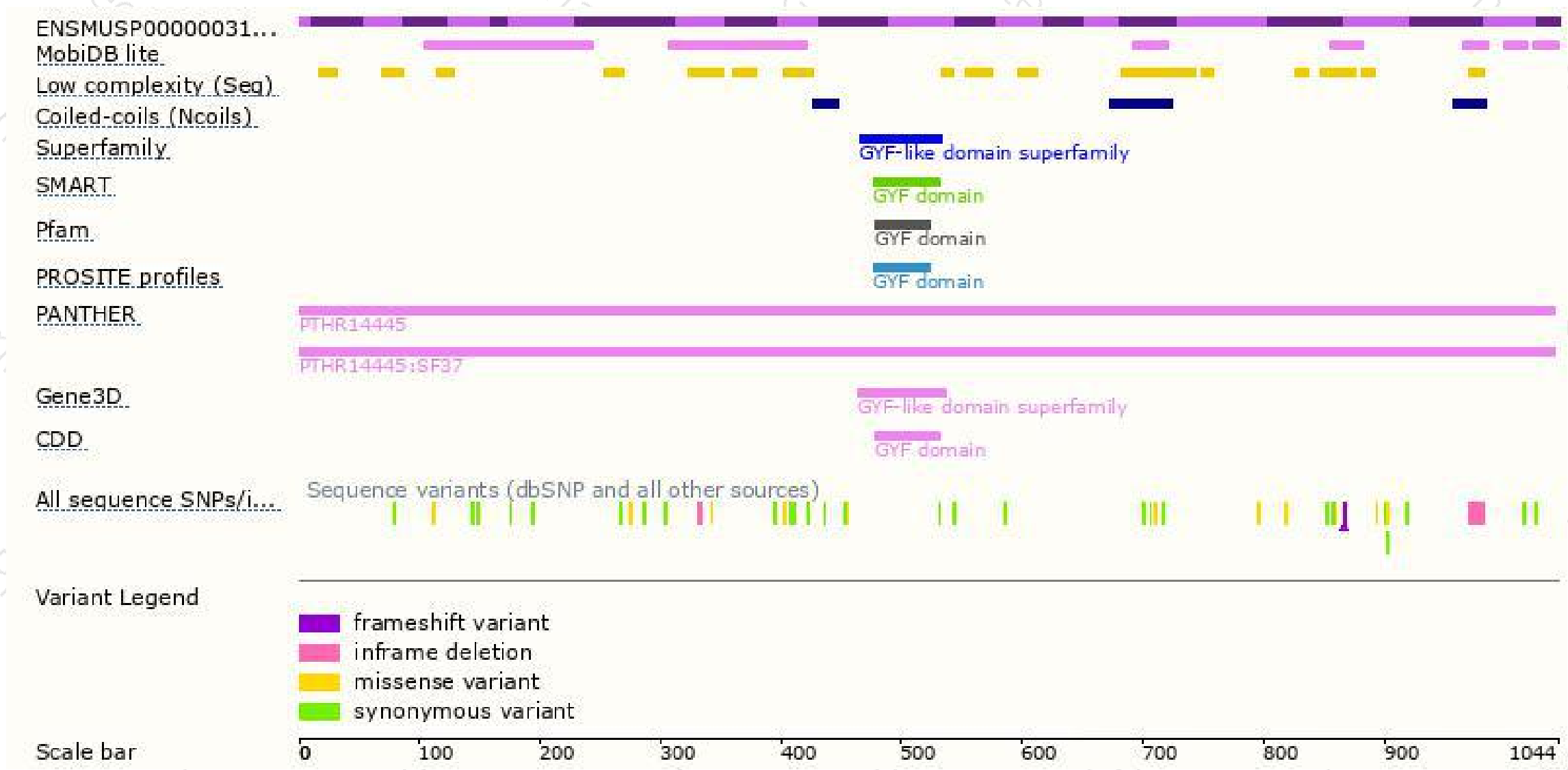


# Genomic location distribution





# Protein domain



If you have any questions, you are welcome to inquire.

Tel: 025-5864 1534

